

Attorney's Docket No. K&A 23-0340
Client's Docket No. 14487

APPLICATION

FOR UNITED STATES LETTERS PATENT

SPECIFICATION

TO ALL WHOM IT MAY CONCERN:

BE IT KNOWN THAT I, **LARRY D. OWENS**, a citizen of
UNITED STATES OF AMERICA, have invented a new and useful
CHILD POSITION MONITORING SYSTEM of which the
following is a specification:

CHILD POSITION MONITORING SYSTEM

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BACKGROUND OF THE INVENTION

Field of the Invention

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The present invention relates to baby monitors and more particularly pertains to a new child position monitoring system for providing a warning to a user that a child being monitored has or is moving.

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Description of the Prior Art

The use of baby monitors is known in the prior art. Illustrative examples include: U.S. Patent No. 4,785,291; U.S. Patent No. 5,510,771; U.S. Patent No. 5,525,967; U.S. Patent No. 6,127,931; and U.S. Patent No. 6,396,403.

25 Additionally, pressure-matt type devices have been used to monitor children at risk for SIDS or with a sleep apnea problem. Further, various walkie-talkie type audio monitors and video monitors have been used.

30 While these devices fulfill their respective, particular objectives and requirements, the need remains for a system that can be used regardless of the location used to lay down the child including beds, couches, cribs, floors, etc.

SUMMARY OF THE INVENTION

5 The present invention meets the needs presented above by providing a motion detecting assembly which can be coupled to or worn by the child. As the child rolls, the motion detection assembly detects the movement of the child and can relay a signal to a user.

10 Another advantage of the present invention is to provide a new child position monitoring system that allows a parent to have a child sleep on the same bed, couch, or other surface as the parent and be alerted in the child rolls towards the edge of the bed or couch.

15 To this end, the present invention generally comprises a motion detection assembly detects when the child rolls over, the motion detection assembly includes a transmitter assembly for sending a signal associated with motion detected; a coupling
20 assembly is used for coupling the motion detection assembly to the child; and a monitoring assembly operationally interacting with the motion detection assembly and providing an indication associated with motion detected by the motion detection assembly to the user.

25 There has thus been outlined, rather broadly, the more important features of the invention in order that the detailed description thereof that follows may be better understood, and in order that the present contribution to the art may be better appreciated. There are additional features of the invention that
30 will be described hereinafter and which will form the subject matter of the claims appended hereto.

The objects of the invention, along with the various features of novelty which characterize the invention, are pointed out with particularity in the claims annexed to and forming a part of this
5 disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be better understood and objects other than
10 those set forth above will become apparent when consideration is given to the following detailed description thereof. Such description makes reference to the annexed drawings wherein:

Figure 1 is a schematic perspective view of a new child
15 position monitoring system in use according to the present invention.

Figure 2 is a schematic perspective view of the present
invention.

20 Figure 3 is a schematic perspective view of an embodiment of the present invention.

Figure 4 is a schematic functional interconnect diagram of the
25 present invention.

Figure 5 is a schematic functional interconnect diagram of an
embodiment of the present invention.

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DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference now to the drawings, and in particular to Figures 1 through 5 thereof, a new child position monitoring system
5 embodying the principles and concepts of the present invention and generally designated by the reference numeral 10 will be described.

As best illustrated in Figures 1 through 5, the child position monitoring system 10 generally a motion detection assembly 20, a
10 coupling assembly 30, and a monitoring assembly 40.

The motion detection assembly 20 detects when the child rolls over. The motion detection assembly 20 includes a transmitter assembly 22 for sending a signal associated with motion detected.
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The coupling assembly 30 is used for coupling the motion detection assembly 20 to the child. The coupling assembly 30 is preferably wearable by the child. Preferred versions of the coupling assembly include a body suit 32, a vest 34, or a belt 36.
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The monitoring assembly 40 operationally interacts with the motion detection assembly 20. The monitoring assembly 40 provides an indication associated with motion detected by the motion detection assembly 20. The monitoring assembly 40 further
25 comprises a receiver assembly 42 for receiving the signal associated with motion detected by the motion detection assembly 20.

A belt assembly 60 may be used for operationally coupling the
30 monitoring assembly 40 to a user.

In at least one embodiment, an interconnection member 50 is operationally coupled between the motion detection assembly 20 and the monitoring assembly 40. The interconnection member 50 is elongate and flexible. The monitoring assembly 40 provides an indication associated with motion detected by the motion detecting assembly 20 when the interconnection member 50 is disconnected from either one of the motion detection assembly 20 or the monitoring assembly 40.

In a further embodiment, the indication associated with motion detected by the motion detecting assembly 20 further is an audio alarm.

In yet a further embodiment, the audio alarm is terminated upon reconnection of the interconnection member 50 between the motion detection assembly 20 and the monitoring assembly 40.

In still a further embodiment, the indication associated with motion, detected by the motion detection assembly 20 may be reset by actuating a reset means 21, such as a switch, operationally coupled to the motion detection assembly 20.

In an embodiment, the transmitter assembly 22 is designed for wireless transmission of the signal and the receiver assembly 42 being designed for wireless reception of the signal.

In even still a further embodiment the audio alarm may be terminated upon reception of a reset signal transmitted from the monitoring assembly 40 to the motion detection assembly 20.

In an embodiment the motion detection assembly 20 includes a first transceiver assembly 24 for sending a signal associated with motion detected and receiving signals from the monitoring assembly 40. Similarly, the monitoring assembly 40 further comprises a
5 second transceiver assembly 44 for receiving the signal associated with motion detected by the motion detection assembly 20 and transmitting signals to the motion detection assembly 20.

A microphone 26 may be operationally coupled to the first
10 transceiver assembly 24 for transmitting a representation of ambient sounds near the child, and a speaker member 46 may be operationally coupled to the second transceiver 44 for reproducing the representation of ambient sounds near the child.

15 A vibration means 28 may be operationally coupled to the motion detection assembly 20 to provide a tactile stimulation to the child. A wide variety of vibration means are known in the art including reed vibrators, offset weight and motor arrangements, and other suitable devices.

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In an embodiment the vibration means 28 is actuated by a vibration signal transmitted from the second transceiver assembly 44 and received by the first transceiver assembly 24. Thus, the user may selectively control the tactile stimulation provided to the
25 child.

In at least one embodiment, the system further comprises an image capture means 70 used in conjunction with the monitoring assembly 40. The image capture means 70 selectively captures at least one image of a child coupled to the motion detection

5 assembly. Preferably, the image capture means is a video capture device for capturing a video image of the child. The video capture may be on a continuous, periodic, or as requested basis. Although a video capture device is preferred, a still image capture device may also be used with satisfactory results. The captured image may
10 be routed to the transmitter assembly 22 or first transceiver for sending a representation of the captured image to the monitoring assembly for use by a care-giving user. The monitoring assembly may include a visual display 48 for providing a visual signal associated with the representation of the captured image.
15 Additionally, the image capture device 70 may include a communications port to communicate with a personal computer. A wide variety of communications ports may be used with satisfactory results including but not limited to USB, Serial, Parallel, Firewire, wireless or other suitable devices.

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In use, the coupling means is place on the child to be monitored, and the motion detection assembly is activated. If the interconnection member is to be used, then the interconnection member is coupled between the motion detection assembly and the
25 monitoring assembly. The monitoring assembly may be coupled to the user. The monitoring assembly is activated. Upon the child rolling, the motion detection assembly transmits a signal, either wirelessly or through the interconnection member to the monitoring assembly which provides and indication of the child's movement.

The user may then reposition and or relocate the child to prevent injury.

With respect to the above description then, it is to be realized
5 that the optimum dimensional relationships for the parts of the
invention, to include variations in size, materials, shape, form,
function and manner of operation, assembly and use, are deemed
readily apparent and obvious to one skilled in the art, and all
equivalent relationships to those illustrated in the drawings and
10 described in the specification are intended to be encompassed by
the present invention.

Therefore, the foregoing is considered as illustrative only of
the principles of the invention. Further, since numerous
15 modifications and changes will readily occur to those skilled in the
art, it is not desired to limit the invention to the exact construction
and operation shown and described, and accordingly, all suitable
modifications and equivalents may be resorted to, falling within the
scope of the invention.